IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended): A method for differentiating mesenchymal stem cells into cells that produce steroid hormone-producing ~~cells~~enzymes, comprising stimulating the mesenchymal stem cells, in the presence of cAMP, by transfecting the cells with a vector encoding a ~~transcriptional~~steroidogenic factor 1[[,]] (SF-1)~~l, in the presence of cAMP,~~ wherein the steroid hormone~~s~~-producing~~ed~~ enzymes are selected from the group consisting of p450scc, p450c17, HSD3b1, StAR, 3β-HSD, p450 c21, p450 11b1, and HSD3b6~~progestin, androgen, estrogen, glucocorticoid, and mineralcorticoid~~.

2. (Cancelled)

3. (Previously presented): The method of claim 1, wherein the mesenchymal stem cells are derived from bone marrow.

4. (Previously presented): The method of claim 3, wherein the mesenchymal cells are derived from human.

5. (Previously presented): The method of claim 1 wherein the stimulating by SF-1 in the presence of cAMP is implemented *in vitro.*

6-7. (Cancelled)

8. (Currently amended): The method of claim 5 further comprising culturing the cells that produce steroid hormone-producing enzymes~~cells~~ and recovering steroid hormone from the culture medium.

9-10. (Cancelled)

11. (Currently amended) The method of claim 1 wherein the hormone[[s]] produced ~~are~~is progesterone, androstenedione, ~~progestin~~ or androgen.

12. (New) A method for differentiating mesenchymal stem cells into steroid hormone-producing cells, comprising stimulating the mesenchymal stem cells, in the presence of cAMP, by transfecting the cells with a vector encoding a steroidogenic factor 1 (SF-1), wherein said hormone is selected from the group consisting of progesterone, androgen, and androstendione.